

# An analysis of pharmacy interventions based on relevant indicators in a tertiary hospital

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## INTRODUCTION

Because quantify and analyse is the best way to improve our pharmaceutical care, the aim of the study is to present results of pharmacy interventions (PI) performed in our department. Saint-Maurice's hospital is a tertiary hospital with a maternity unit, a treatment of chronic renal failure unit, psychiatry and functional rehabilitation activities. 51% of the prescriptions are computerised and analysed 5/7 days by the pharmacy staff (5 full-time-equivalent pharmacists).

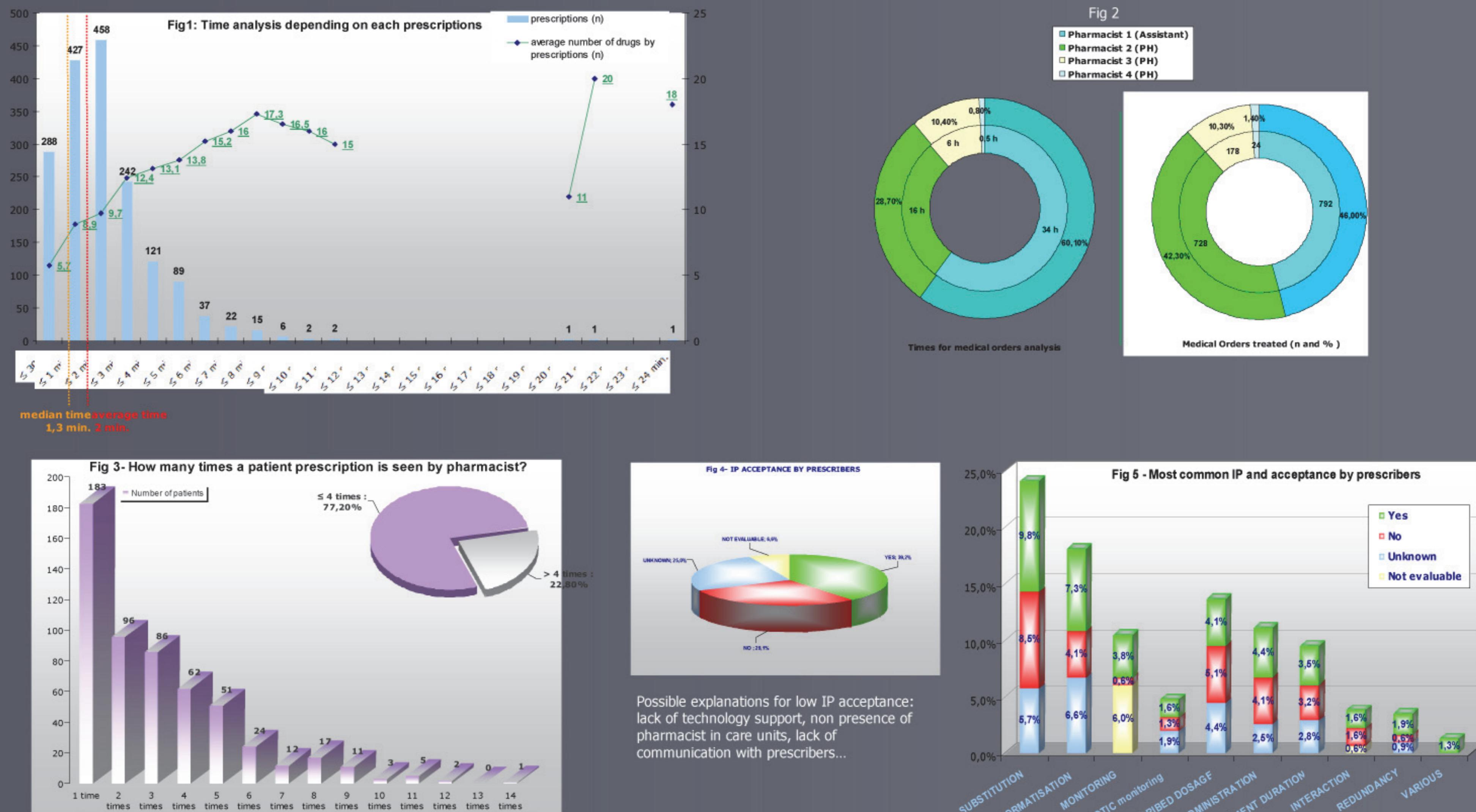
## PROGRAM DESCRIPTION

We based our analysis on relevant indicators from learned society (French Society of Clinical Pharmacy), ministry (Annual Statistic of healthcare Establishment), regional and national health agencies. The primary outcome was the number of PI for all the electronic prescriptions during one month of the prospective study (march-april 2012). Secondary outcomes included time and human resources, types of PI and drug or drug classes incriminated. PI acceptance by prescribers was analysed. These IP performed in our department, proceed from a minimal pharmaceutical analysis: dosage verification, interactions, dosage schedule and pharmaceutical counseling. Clinical, physiopathological and biological information were not available in pharmacy access databases, because of the non-connected system with clinical laboratory, nonexistence of electronic medical record (EMR) and the absence of pharmacist in care units.

## RESULTS

### - QUANTITATIVE AND QUALITATIVE ANALYSIS -

- Production indicators : indicator II.1 from French Society of Clinical Pharmacy and A5, A30 & A35 from SAE 2006\* :
  - The total number of prescriptions analysed and validated by pharmacists: 1722 (55 prescribers, 553 patients)
  - The total number of drug prescriptions analysed and validated by pharmacists: 17222 (average of 10 drugs per order)
  - The total number of beds with pharmaceutical analysis: 440
  - Ratio: number of beds analysed/total number of beds on the hospital: 0.51
  - Number of Pharmacy Interventions: 416 PI were performed (average 1.18 per order). It represents 2.4 % of the total drug prescriptions and 20 % of total orders
- Time indicators: indicator 6.2.1 from CBU\*\* (data processing contract between hospitals and regional health agency in which hospitals declare their objectives and are constrained to justify prescriptions, under penalty and nonrefunding) :
  - It took 3 hours/day of pharmacist's time
  - The average time to analyse one prescription by a pharmacist was 2 minutes. It represents 0.4 full-time-equivalent for 440 beds or 0.1 full-time-equivalent for a pharmacist for 100 beds (with a minimal pharmaceutical analysis) (fig. 1)
- Qualitative analysis of IP : Indicator II.2 and data sheet for IP codification from French Society of Clinical Pharmacy\*\*\*
- Drug substitution, computer induced errors and dosages were the most frequent used interventions (fig.4)
- Tramadol, esomeprazole and associations of antihypertensive agents were the most involved drug classes
- General IP acceptance by prescribers was 39.2% (fig.4)(Indicator II.2 SFPC). Details by IP is described on figure 5
- Other datas : - Figure (2) shows the repartition of analysis (number of orders and time) in the pharmacist staff
  - Figure (3) shows the frequency at which a patient prescription is checked by a pharmacist.



## DISCUSSION

Results of this study were presented during our local Drug and Therapeutics Committee. In order to achieve an higher degree of homogeneity and adequacy between pharmacists and their interventions, monthly staff has been programmed. Laboratory data are now available for pharmacists. The forthcoming EMR will also provide a better support to perform prescriptions with less computer induced errors. We can plan that some monthly or quarterly reports of the IP could be sent to care units managers, as recommended by our regional agency. The involvement of pharmacist in care units could also increase the acceptance of IP by prescribers.

## CONCLUSION

This quantitative and qualitative analysis of pharmacist's interventions have been realised with some national relevant indicators. These results constitute supports to achieve improved clinical programs. There is also scope for benchmarking among similar hospitals of this size.

### References

\* SAE 2006- statistiques annuelle des établissements- ministère de la santé et des solidarités, direction de la recherche, des études, de l'évaluation et des statistiques, BES/07/06, janvier 2007  
\*\* CBU: contrat de bon usage

\*\*\* Data sheet for IP from SFPC, Juin 2004; <http://sfpc.adiph.asso.fr/admin/pdf/fiche-intervention-pharmaceutique.pdf>

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